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THE ANCIENT PUEBLOS, OR THE RUINS OF THE  
VALLEY OF THE RIO SAN JUAN.<sup>1</sup>

BY EDWIN A. BARBER.

## PART I.

AS early as the sixteenth century, about the year fifteen hundred and thirty-nine (1539), some of the deserted cities of a pre-historic people (which have since been found to be so numerous all through a portion of the Pacific slope of North America, were observed by several of the Spanish expeditions which had penetrated into the country north of Mexico, known then under the general name of New Mexico, including the present Territory of Arizona. Many of the towns of this section were at that early date found to be in ruins, presenting every indication of a great antiquity; while others, which now lie mouldering in the cañons of the far west, were found by these old explorers, at that time, to be occupied. The course of the Spaniards, headed by Coronado and others, lay to the south of the San Juan river, passing through the valley of the Rio Grande del Norte, on the Atlantic slope, the seat of the so-called Pueblo Indians, and westward through *Zuñi*, then known as *Cibola*, and so on to the ancient province of *Tusayan*, or our modern *Moqui*, on the Pacific or western slope of the Rocky mountains.

Until the past year or so, however, the great stretch of country lying west of the Range, including portions of Southern Colorado and Utah, and much of Arizona and New Mexico, was entirely or almost unknown. Our only knowledge of it consisted in the inconclusive and contradictory reports of expeditions or individuals which had crossed the borders of the ancient domains; and from their casual discoveries we were made aware of the existence of a multitude of ruins which extended as far north as the thirty-eighth degree of latitude. Unsatisfactory as this information was, it served to arouse a latent interest and to create a thirst for more facts among cultured circles, and opened a new and vast field for scientific research. During the summer of 1874 a pioneer corps was sent out by Prof. F. V. Hayden, of the United States Geological Survey, to photograph any ancient structures which might be discovered in South-western Colorado and South-eastern Utah, thus preparing the way, as it were, for a

<sup>1</sup>Extracts from a paper written by the author and read before the *Congrès des Américanistes*, at Luxembourg, in September, 1877, with additions.

more thorough exploration of this country during the next season. The results of this expedition were so flattering, and the report of the photographer, Mr. Wm. H. Jackson, so full of interest, enthusiasm and valuable information, that several parties were ordered to the field in the summer of 1875.

In passing through this portion of the west, the traveler is first impressed with the great extent of the territory over which the ancient remains occur. Generally speaking, they occupy the great valleys drained by the San Juan river and its tributaries, the Rio Grande del Norte, and the Colorado of the west, covering an area of probably 200,000 square miles.

The communities, it is evident, sprung up along the banks and valleys of the once well-watered streams, and as many of these are now entirely dry, this fact would suggest the idea that the entire character of the country has undergone a great physical change. A calculation as to the time required to effect such an alteration might assist us in arriving at the approximate age of these remains. On further investigation, it will be discovered that not only the larger water-supplies have failed since these structures were occupied, but the lesser ones also, in the form of springs, reservoirs and lakes; because in the majority of instances to-day, not a drop of moisture exists within a radius of twenty-five or thirty miles from many of the more important ruined villages. The entire country must at one time, and during the prosperity of the race, have been well-watered and fertile. The beds of the parched flood-washes must formerly at times have conveyed the waters of overflowing torrents, as everything yet indicates, and the valleys were productive of corn and the indigenous vegetables, for the very farms and corn-fields are still traceable in the river-bottoms, laid out in rectangles, and well defined by the dense growth of a hardy species of *Helianthus*. A great blight must have swept over the land, scorching and parching every green thing, and lapping up every particle of moisture, transforming the luxuriant valleys into deserts of rocks and sand.

The ruined buildings of this portion of the west may be arranged under two general heads: First, *Valley Remains*; Second, *Cliff Houses*.

The former class consists of those which were built on level ground, either in the river-bottoms or at the feet of ravines and cañons; and these may be subdivided into two classes: First,

*Puéblos* or towns, and secondly, *Defensive structures*. Valley ruins were by far the most extensive, sometimes covering miles of bottom land, in an almost unbroken series of huge buildings, but they were not nearly so numerous as the cliff houses. The ancient tribe or tribes congregated together along the water-courses for sociability (man being a gregarious animal) and for mutual protection.

The cliff-houses are of three sorts: First, *dwellings*; secondly, *watch-towers*; and, thirdly, *caches* or *store-houses*. These were built among the sandstone bluffs and crags of the cañons; at every altitude and in every conceivable position. From the base of an almost vertical wall, up to the very summit of the *mésa*, a distance, sometimes of over a thousand feet, these human eyries are perceivable, perched sometimes on almost or quite inaccessible shelves, or on the very pinnacle of some isolated boulder, whose sides look down perpendicularly for hundreds of feet. In every imaginable condition of location, they existed and the beholder is impressed with a feeling of awe, in simply gazing on the works of the intrepid architects; on the places where human beings once dwelt; places which now are wholly out of reach of the explorer. The walls of the buildings are sometimes built along the ledges of rock, on the horizontal foot-holds which occur among the cliffs; but far more frequently, the natural caves and hollows (formed by the erosion of the atmosphere) were converted into dwelling places.

One of the most noticeable features of all of these cliff-structures, was the evident desire on the part of their proprietors to conceal them from view, and this is shown in the prevailing custom of building in secluded spots, and in imitating, as accurately as possible, in the architecture, the general appearance of the surrounding rocks. In many cases, indeed, this simulation of texture and color has been rendered so perfect, that the ruins are entirely over-looked, unless brought to view through a field-glass.

Clearly, then, there must have been a cause for these precautions. The empire was invaded by a foreign foe, and the people gradually forced southward; fleeing to the rocks at first, for refuge, but finally retiring before the advance of a powerful and cruel enemy. This fact is made more evident by the presence of great numbers of arrow-points and war-like weapons, in the

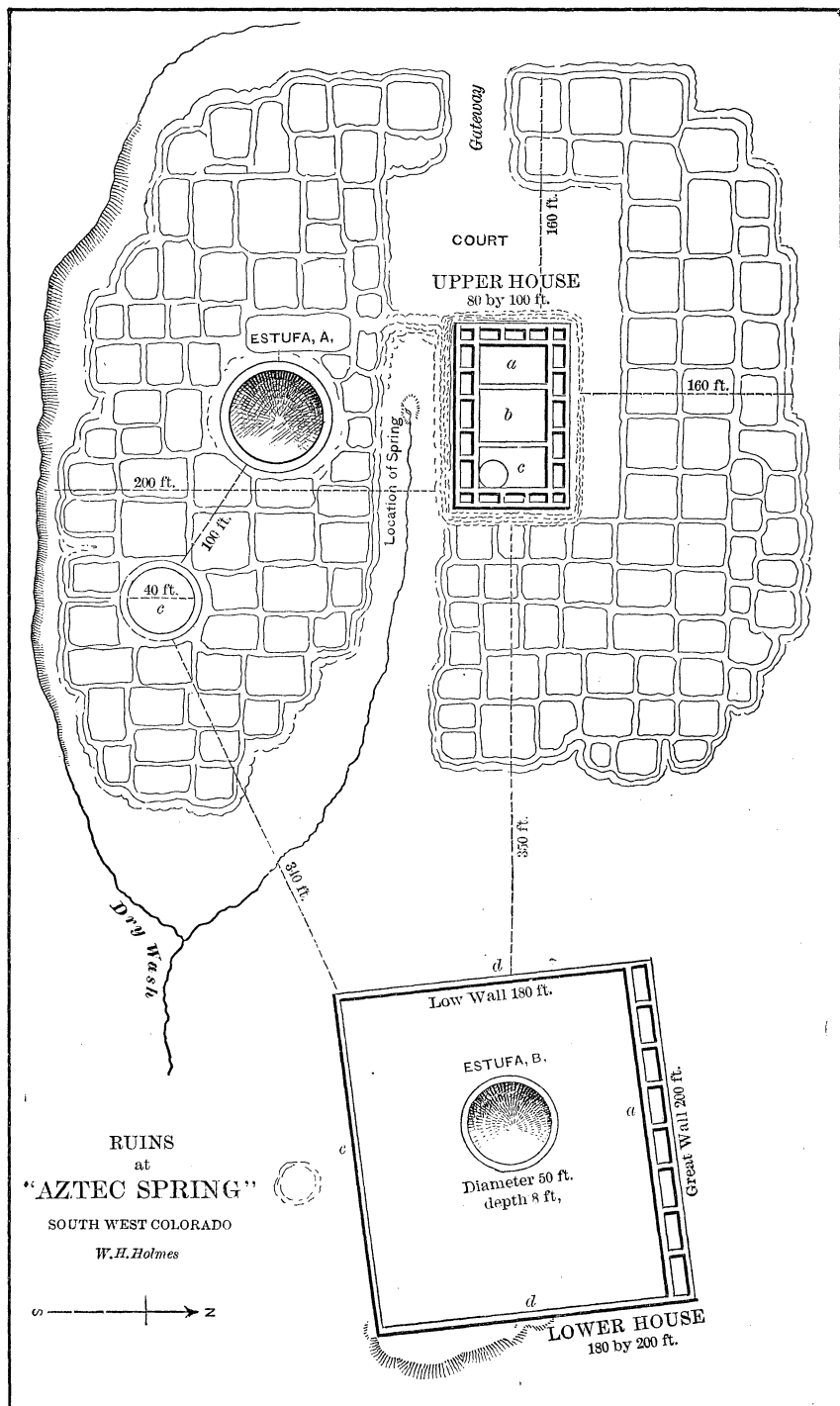
immediate vicinity of all of the larger remains. Great battles had been fought, and each stronghold was given up only after a prolonged and valiant resistance.

In the extreme south-western corner of Colorado stand the ruins of a once populous settlement, which we will call *Astec Spring*. The *débris* of the destroyed city, covers an area some 600 by 800 feet in extent. The majority of the walls of the smaller houses near the out-skirts have crumbled away and now present nothing to the view but scarcely distinguishable mounds, or lines of original foundation. The houses had been built of different shapes, usually quadrilateral or circular, and were *generally* of small size, containing as a rule but one room. At the northern end of the *pueblo* or town, however, portions of the walls of two immense parallelogramic valley structures are still standing, whose surroundings seem to indicate that they had been erected with a view to the mutual protection of a large number of people, and for the purpose of resisting a protracted siege. They had been placed side by side, facing almost due north, with a space between them of several hundred feet. The northern circumvallations at present, reach a height varying from eight to eleven feet, while the remaining sides and the interior partitions lie in a jumbled mass of decay. This is owing to the fact that the latter were constructed of adobe. The northern faces, only, were built of stone. (See Plate III, for ground plan of the village. This and the other illustrations were kindly loaned by Prof. Hayden.)

Over all, a gnarled vegetation has sprung up, consisting of Cacti, *Artemisia* or sage-brush, and almost impenetrable thickets of grease-wood.

The stones had been cut symmetrically into rectangular blocks, and evenly dressed with stone implements; the pieces averaging a foot in length, four to six inches in thickness, and half a foot in breadth, being usually so laid that those of one layer, would break joints with those of the next above and below. The mortar with which the walls had been cemented, was simply an adobé clay, but as this contained some calcareous dust from the powdered limestones which occur in this locality, it has in time become as hard as the stones which it joins together. The edges of the blocks, as well as the surface of the plaster have been wearing away for centuries beneath the disintegrating action

## PLATE III.



of the elements, yet the remaining walls, which measure nearly three feet in thickness, are as firm as ever, and will in all probability thus continue for hundreds of years to come. In the distance, the great Mesa Verde (the green plateau) rises a thousand feet and stretches away for many miles to the north and east. It was from these cliffs that the blocks of stone in the neighboring ruins were cut and carried a distance of two or three miles.

A short distance below these remains and in the dry *arroyo* or cañon, locally known as the Rio McElmo (or, more properly, the Rio McElmell) is noticeable, in passing along the trail in the valley, the lower portion of a dark-brown circular tower, built far up among the rocks of the neighboring bluff, on a large boulder, at the brink of a sheer precipice, (Fig. 1).

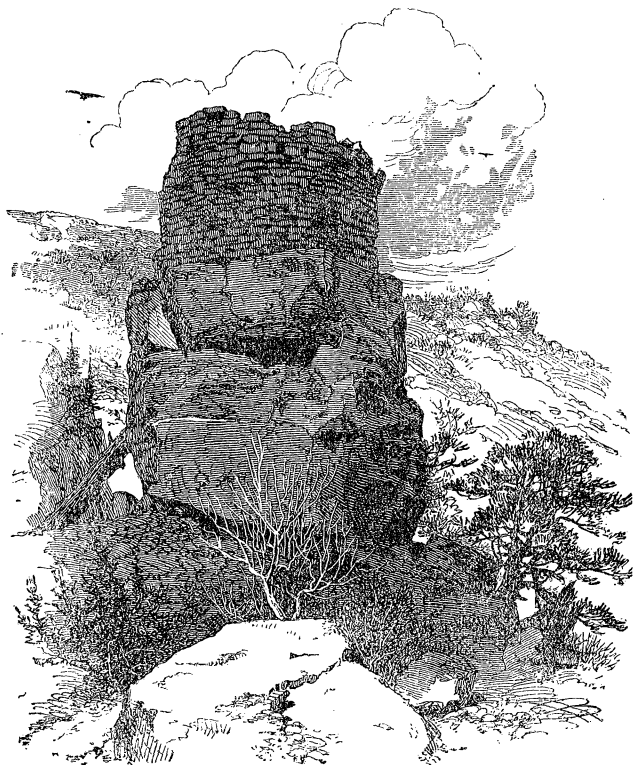


Fig. 1. Watch Tower on the Rio McElmo.

A very ancient path, now almost obliterated, leads up to the ruin. The structure, as well as the rock on which it stands, is

about ten or twelve feet in diameter, and the walls of the former may still reach a height of ten feet. This was undoubtedly used as a watch-tower by its builders, and the situation chosen for it was an admirable one for overlooking the gulch many miles both above and below. From this point, signals could be telegraphed to distant stations, in times of danger, while the miniature castle itself was so sheltered by the surrounding trees and *débris* as to escape the notice of careless observers.

The natural depression through which winds the parched bed of the Rio McElmo is particularly rich in all varieties of these architectural relics. In the vicinity of the ruins just described, and near the Utah border, is a peculiarly interesting cluster of fortifications. A mass of dark-red sandstone, a hundred feet in height, stands in the midst of an open plain, on the top of which the remnants of several walls are still visible. Around the base of the jagged butte are other indications of masonry, but the most perfectly preserved portion of the group is a rectangular apartment, built half-way up in the northern face of the bowlder, which has been named *Battle rock* or *Legendary butte*, because a legend exists amongst some of the tribes of that section relative to a great battle which had been fought there (Fig. 2).

In the immediate neighborhood of Battle rock may be seen a series of diminutive cave dwellings or store-houses. The natural caverns of the crumbling sandstones, formed by atmospheric erosion, were utilized by the Ancient Puéblós as they retreated southward. Little hollows scarcely exceeding six feet in diameter, were walled up at the mouths and occupied possibly as dormitories, or, more probably, as magazines or *caches*, in which provisions were stored for safe keeping. Scores of these are found through all of the adjacent cañons, and in many instances they are situated hundreds of feet above the beds of the streams and were originally approached by niche-steps cut in the perpendicular cliffs, but which have been so worn away by time that they no longer present foot-holds for the adventurous climber.

If we advance in a westward direction some fifteen miles, to the dry valley of the Hovenweep (the name signifying, in the euphonious tongue of the Utah Indians, *deserted cañon*) we shall discover another large ruined structure, built on a miniature *mesa* or plateau in the center of the valley, rising to a height of fifty feet. On this the walls of a fortress or community dwelling are



heaped together, extending for a horizontal distance of two hun-

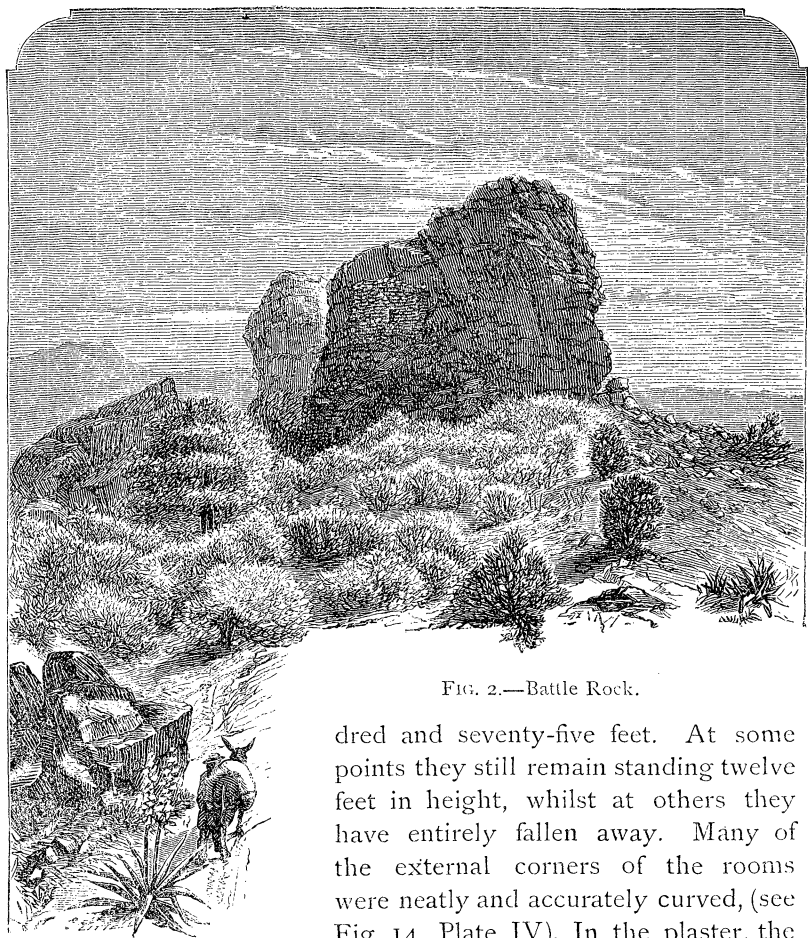


FIG. 2.—Battle Rock.

dred and seventy-five feet. At some points they still remain standing twelve feet in height, whilst at others they have entirely fallen away. Many of the external corners of the rooms were neatly and accurately curved, (see Fig. 14, Plate IV). In the plaster, the impressions of knuckles, finger-tips and nails are quite distinct, and in some instances, the very delicate lines of the epidermis are distinctly visible in the prints.

We cannot doubt that a multitude of workmen were employed in masonic labor, for in order to construct such huge edifices, a great amount of manual labor would be required, in the transportation of stone for many miles, trimming it into blocks, laying it in the walls, preparing the mortar, cutting cedar beams and rafters, plastering the external or internal walls with a coating of adobe, etc., and these operations may have required, in many cases, years for the completion of a single building. When we consider

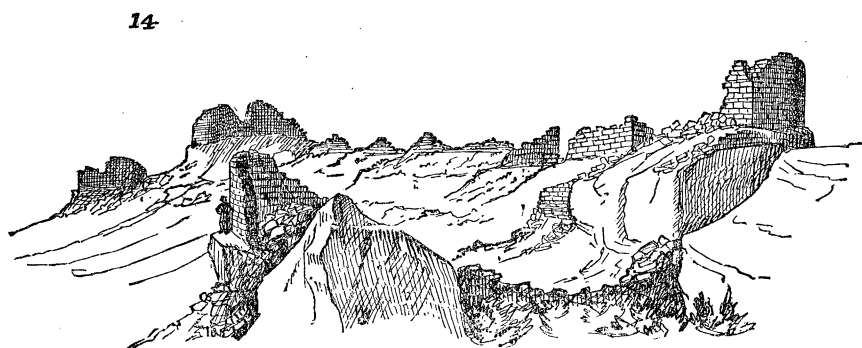
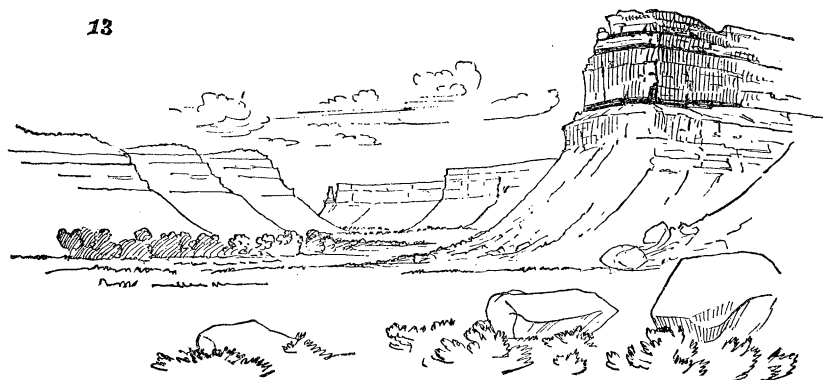
the difficulties with which these pioneer architects had to contend, resulting from the imperfection of their stone implements, in the absence of any metal tools, we are filled with wonder and admiration in viewing the results of their patient labor.

A remarkable cliff-house was discovered in the cañon of the Mancos river, a northern tributary of the San Juan, in the summer of 1874. Mr. W. H. Jackson, the photographer of the expedition, thus describes it: "Just as the sun was sinking behind the western walls of the cañon, one of the party descried far up the cliff, what appeared to be a house, with apertures indicating two stories, but so far up that only the very sharpest eyes could define anything satisfactorily, as we had no field-glass with the party. The discovery of this, so far above anything heretofore seen, inspired us immediately with the ambition to scale the height and explore it. The house stood upon a narrow ledge, which formed the floor, and was overhung by the rocks of the cliff. The depth of this ledge was about ten feet, by twenty in length, and the vertical space between the ledge and overhanging rock some fifteen feet. It was perched up in its little crevice like a swallow's nest, and consisted of two stories, with a total height of about twelve feet. The only sign of weakness was in the bulging outward of the front wall, produced by the giving way or removal of the floor beams. Most peculiar was the dressing of the walls of the upper and lower front rooms; both were plastered with a thin layer of some firm cement of about an eighth of an inch in thickness, and colored a deep maroon-red, with a dingy white band eight inches in breadth, running around floor, sides and ceiling. In some places it had peeled away, exposing a smoothly dressed surface of rock." (Plate IV, Fig. 12).

Such are the outlines of a pen picture of an isolated ruin which has attracted, since its discovery, much attention, both at home and abroad. A number of clay models have been recently made of it, which have been placed in several of the most famous museums in Europe. It already figures in some of the standard works on the aboriginal inhabitants of North America,<sup>1</sup> and is considered one of the most unique specimens of ancient architecture thus far discovered in this section. The illustration will give a general idea of the house itself, but in order to realize its position in the cañon, a vertical distance of 800 feet must be

<sup>1</sup> *Vide* Bancroft's *Native Races of the Pacific States*, Vol. IV, p. 721.

## PLATE IV.



imagined, separating it from the level of the Mancos river flowing at the foot of the precipice.

The remains of an old tower are to be seen in the valley below, the walls of which are several feet in height, having the plaster crumbled almost entirely away from the interstices between the stones. The mounds of decay which lie within and without, show conclusively that the building at one time was many times as high as it now appears. In the vicinity quantities of highly glazed and ornamented pottery lies scattered around, but all of it in a fragmentary condition.

Through the neighboring cañons occur thousands of these interesting mural remains, but space forbids the mention of more than a few of the most characteristic.

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## THE NEW CARPET BEETLE—ANTHRENUS SCROPHULARIÆ.<sup>1</sup>

BY J. A. LINTNER.

DURING the summer of 1874, notices appeared in various newspapers of the ravages of a carpet-beetle, quite different in its appearance and in the character of its depredations from the well-known carpet-moth, *Tinea tapetzella*, which for so long a time had been the only known insect depredator on our carpets.

Its *habitat* was stated to be beneath the borders of carpets where nailed to the floor, eating in those portions numerous holes of an inch or more in diameter. Occasionally it made its way into the crevices left by the joinings of the floor, following which, entire breadths of carpet would be cut across as by scissors. In several instances carpets had been destroyed—new ones as readily as older—and it was questioned whether their use could be continued, in view of a prospective increase of the alarming ravages.

The insect was new to every one, and no one could form a rational conjecture as to what order of the Insecta it belonged. It was described as a small ovate object, about one eighth of an inch in length, thickly clothed with numerous short bristle-like hairs, and terminating in a pencil of these, forming a tail. It was exceedingly active in its motions, and when disturbed in its con-

<sup>1</sup> From advance sheets of the Thirteenth Annual Report on the New York State Museum of Natural History.